



# Understanding project cancellation risks in U.S. P3 surface transportation infrastructure

Lauren N. McCarthy<sup>\*</sup>, Lisardo Bolaños, Jeong Yun Kweun, Jonathan Gifford

Center for Transportation Public-Private Partnership Policy, Schar School of Policy and Government, George Mason University, 3351 Fairfax Dr MS 3B1, Arlington, VA, 22001, USA

## ARTICLE INFO

### Keywords:

Public-private partnerships  
Political risk  
Project cancellation  
Economic risk  
United States

## ABSTRACT

Public private partnership (P3) projects can face many internal and external risks affecting their development and implementation. As a result, this research explores the understudied risk factors underlying the U.S.' cancelled, deferred, and terminated (CDT) P3 projects. A database of CDT projects is developed. Of the projects identified as the U.S. surface transportation P3 population, 46% (31 out of 68) experienced cancellation, deferment or early contract termination. The research then applied a risk typology and a multi-case study method to the troubled cases to identify common risk factors. Data collection focused primarily on the identification of political (public and political voice, bureaucratic complexity) and economic risk factors. The most frequently identified factors across the 31 cancelled, deferred, or terminated cases include political opposition, local opposition, and inadequate demand projections. Since the paper studies the entire U.S. surface transportation P3 project population, the results serve to inform public agencies and private sector actors of possible friction points meriting consideration during P3 procurement planning.

## 1. Introduction

Aging infrastructure systems present challenges for the U.S. public sector that, when combined with binding debt ceilings, have increased governments' interest in attracting private sector resources via public-private partnerships (P3s) when financing and delivering surface transportation and transit projects (Department of the Treasury, 2014; The White House, 2018). Under traditional public procurement, the public sector maintains considerable control over all procurement and construction stages, simply hiring the private sector to build assets. P3 delivery methods, by contrast, typically feature long-term contracts that distribute project, construction, and financial risks between a public sector owner and a private sector concessionaire (Iossa and Martimort, 2008). Such contracts enable both private-sector financing and private-sector oversight and coordination across several project stages. As a result, private-sector involvement in long-term service provision can help the public sector overcome financial barriers, accelerate project delivery, introduce innovation, and improve risk management (Bolanos et al., 2018).

Despite their advantages, P3s can also present challenges. P3s face several political uncertainties from multiple parties even though they

are led by powerful, large corporations and the government. Yet, while present, "privileged position of the private sector", or corporatism, as in Lindblom (1977) does not go unchecked. Bureaucratic delays, elections, changes in administration, local pressure for subsidies or favorable treatment, government intervention, subjective project evaluation, limited interagency coordination, and local opposition – can influence project outcomes (Bing et al., 2005; Cheung and Chan, 2011; Moszoro and Spiller, 2012; Simon, 1984; World Economic Forum, 2014). Private companies' concern for internal rates of return and their lenders' sensitivity to debt service payments can make their P3 investment decisions particularly sensitive to political climate, corruption, expropriation, regulatory changes, weak institutions, and other forms of political instability (U.S. Federal Highway Administration, 2012; Kwak et al., 2009; International Transportation Forum, 2018). In addition, given P3s' bundled services, risk transfer objectives, and long-term contracts, political, public, and economic risks can intermingle to produce impacts on project completion likelihoods, procurement processes, transaction costs, and expected returns on private investment.

P3 infrastructure projects' capital-intensive nature and large investment magnitudes make them highly visible (Henisz, 2002), often drawing special media and public attention, particularly during their

<sup>\*</sup> Corresponding author.

E-mail addresses: [lmccart5@gmu.edu](mailto:lmccart5@gmu.edu) (L.N. McCarthy), [lbolano2@gmu.edu](mailto:lbolano2@gmu.edu) (L. Bolaños), [jykwun@gmail.com](mailto:jykwun@gmail.com) (J.Y. Kweun), [jgifford@gmu.edu](mailto:jgifford@gmu.edu) (J. Gifford).

construction stages. Such investments might also draw special scrutiny when the dynamics of inter-party transactions encourage opportunistic behavior, particularly from the private sector (Williamson, 2010; Moszoro and Spiller, 2012). Public involvement in the policy process appears relevant as projects involving tolling, taxes, and public debt tend to stir public passions (Slone, 2015); The concept of the polyarchy may explain this relevancy (Dahl, 1973). Citizens are effectively participating and influencing the P3 policy process through elections, organizations, media influence and legal challenges to state DOTs. Indeed, adding private sector financial components to projects already considering tolling, increased taxes, and/or public-sector debt often increases public controversy to the point where some even compare such projects to “piñatas” (Public Works Financing, 2016). Such public opposition appears particularly challenging in nations with strong political institutions, especially when the private sector invests in publicly owned infrastructure (Kim, 2014). In the U.S., public opposition to privately financed infrastructure projects has generated considerable industry concern and may have affected state gubernatorial elections, particularly when the projects involved tolls (Morrill, 2016a; 2016b). Consulting firms have developed investment tools to help investors avoid risky jurisdictions where such projects appear less likely to succeed (Aon Risk Solutions, 2018) and practitioners increasingly hypothesize political risk specifically has hampered P3 growth in the U.S. (Moody’s Investors Service, 2016; National Council for Public-Private Partnerships, 2015).

As such, poorly managed political and economic risks have potential to drive P3 projects into contract renegotiations, bankruptcies, early contract terminations, deferrals, and in the most extreme cases outright cancellations. In response, the paper explores potential relationships between political risks, economic risks, and project outcomes in the increasingly strained U.S. surface transportation P3 market. The following paper investigates how frequently and why P3 projects get cancelled, deferred, or terminated (CDT). To do this the drivers behind cancellations, deferrals, and terminations are determined through the creation of the risk typology. We submit the risk factors present in P3 procurement are political (public and political voice, bureaucratic complexity) and economic risk factors. Second, to determine how frequently stakeholders cancel, defer, or terminate U.S. surface transportation P3 projects a database was constructed of all U.S. surface transportation projects. Before engaging in the database construction, the assumption was this number would be below 25%. The cases where cancellation, deferral or termination happen are investigated further to determine why each CDT occurred. Observed drivers are then matched to the risk typology to 1) confirm the risk typology is accurate and 2) to classify the cases by driver(s) to determine. Political voice is predicted to be the strongest driver toward cancellation, particularly in combination with public voice. The paper will then consider what lessons public and private sector stakeholders can draw from cancelled, deferred, and terminated projects within the U.S. surface transportation P3 market.

The remainder of the article proceeds as follows: the first section presents relevant background and political and economic risk theory; the next section details the dataset development process and analytical methodology; the project analyses are presented next, followed by the empirical findings and their implications for P3 project completion.

## 2. Political and economic risks in the U.S. P3 context

In the P3 context, the literature highlights two primary risk categories for study: political risks and economic risks. Talus (2009), for example, identified both a) economic risks, tied to future demand and availability risk, and b) political risks resulting in changed investment climates as common drivers behind early energy infrastructure concession or license terminations in Europe. Zhang and Xiong (2015) similarly, identify unexpected events as drivers behind early contract terminations among a sample of global P3s. Song, Hu, Feng (2017), studying early terminations in China, further identify inaccurate

demand forecasts, changes in market demand, public opposition, and regulatory changes as relevant factors. Political and regulatory risks have been identified as important considerations for P3s (Lawther and Martin, 2015) but analysis is often limited to subjective surveys from practitioners to identify perceived political risks (Chen et al., 2016). Risks can derive from the imposition of constraints upon business arrangements by government and/or community actions (Kobrin, 1979). U.S. practitioners, in turn, have argued that factors like contract ambiguity, expectation management failures, principal-agent problems, and administrative changes have led to U.S. project delays and possibly project cancellations (Guthkelch, 2016). A regulator might deny environmental permits, for example, or a new administration might not advance a predecessor’s project to financial close. Community action through government mechanisms like public hearings and litigation might similarly affect P3 infrastructure projects. While such activities rightfully exist to support community welfare and engagement, they may also impede private investment and/or affect project viability. This is particularly true in areas with high ethnic, social, and/or political fractionalization (Annett, 2001).

Given this context, the analysis presented here is structured around four project cancellation drivers – bureaucratic complexity, public voice, political voice, and exogenous economic conditions– juxtaposing projects’ internal, bureaucratic conflicts with external conflicts deriving from economic conditions, politicians, and the public. These drivers appear similar to the risks described by the World Economic Forum (World Economic Forum, 2014), although the present analysis also considers risks beyond the planning and design phases. The drivers also mirror the critical success factor (CSF) literature summarized by Osei-Kyei and Chan (2015). The most common CSFs included strong private consortium, political support, community/public support and transparent business practices; the opposite of which are indicated as drivers of CDT.

### 2.1. Bureaucratic complexity

Bureaucratic complexity, including complex regulatory structures and/or interagency approval processes, can increase project cancellation risks in two ways. First, *intergovernmental conflicts* can develop as the public sector coordinates its actions. As governance has moved away from unilateral structures toward decentralized governance across multiple levels, the result is greater flexibility in decision-making (Hooghe and Marks, 2003). Within a multi-level governance structure, organizations are dependent on each other for resources to achieve their goals (Rhodes, 2007). Thus, once decision-making is dispersed from a central government jurisdictional conflict can arise through this exchange. Procurement processes often involve state and/or local transportation agencies as well as state and/or federal environmental agencies, permitting offices, inspectors, etc. Public-sector project funding, similarly, can come from local, state, and/or federal sources. Bureaucratic complexity can also produce power struggles as agencies seek autonomy, struggle with multiple objectives, and resist trade-offs needed to achieve Pareto optimal solutions or shift to second-best solutions (Brill, 1979; Wilson, 1989). Given these circumstances, coordination problems and interagency conflicts can develop into long-term distrust that undermines future cooperation and project development.

Such conflicts are prevalent in the U.S. and Europe where federalism and institutional checks and balances intentionally include numerous public agencies with overlapping mandates at the local, state and federal levels (Kingdon, 1999). Intergovernmental conflict is of particular relevance to the case of U.S. surface P3 projects. Such complexity across multiple public-sector agencies with very different mandates and regulatory layers can increase the probability of conflict, particularly when complex P3 comprehensive agreements are involved.

Second, political risk may arise if *inadequate contract terms* affect partnership relationships and goal achievement. Inadequate terms can be especially problematic for P3 projects when the sponsoring public

agency lacks the skills or knowledge necessary to fully develop a comprehensive agreement. The London Underground, for example, became plagued with political tension, due to contract inadequacies and budget uncertainty (Gannon, 2011). A 2004 National Audit Office report concluded the termination occurred due to the project's complex nature and over promised improvements (National Audit Office, 2004). Such P3 comprehensive agreements, typically covering thousands of pages filled with engineering, financial, and legal terminology, present a particular problem for agencies implementing P3s for the first time. The U.S. is no different. Since the U.S. regulatory landscape lacks standardization and institutional learning pathways first time P3 negotiation can also lead to conflict, confusion, and ultimate cancellation. Like interagency conflicts, inadequate contract terms can also manifest due to information asymmetry or opportunistic behavior on the part of either the public or the private sector.

## 2.2. Public voice

Project cancellation risk can also derive from political actions undertaken by citizens and politicians. Albert Hirschman popularized the term “voice” for the idea that highly-involved individuals interested in organizational changes communicate their complaints and suggestions rather than remaining passive and/or exiting (Hirschman, 2004). Public voice, encompasses citizens' ability to express and exercise their interests and concerns through participation in protests, government elections, public hearings, legal challenges, local or national organizations, and/or grassroots movements (Paul, 1992, 1054). When examining political risk in the U.S. P3 context, two public voice components merit scrutiny: local opposition and ideological opposition. *Local opposition* typically pushes back against expected negative quality of life impacts for those living in affected communities. U.S. grassroots movements developed from such public opposition can develop into powerful forces, particularly when Not In My Backyard (NIMBY) reactions come into play. Given the power of NIMBY is due to the autonomy of localities with respect to land use, examples are frequently found among urban development (transportation and housing) projects (Oakley, 2002). NIMBYism is linked to political activism, with the intent to influence decision-makers and should not be confused with ideological opposition (Michaud et al., 2008).

*Ideological opposition* objects to broader friction points, e.g. an anti-corporation movement, or simply to an agency or government's policies, even when the project does not impact the local community directly. For example, support for environmental protection or objections to urban sprawl might lead some stakeholders to oppose greenfield transportation projects as a general principle. Others might prioritize national security over economic efficiency and effectiveness, objecting to involvement from foreign corporations as a result. Such ideological opposition, particularly regarding public health and environmental concerns, have evolved into political movements in the past (Freudenberg and Steinsapir, 1991).

## 2.3. Political voice

Political voice represents a separate risk category and can drive P3 risks through two pathways. First, a shift in a political body's makeup can transform the political environment and increase in uncertainty for the private sector. Elections and *political transitions*, for example, can alter legislative bodies and executive leadership at the national, state, and local levels, potentially producing new laws (*legislative change*), priorities, budgets, procurement processes, and political climates. Such changes particularly affect P3s given their reliance on enabling legislation and long-term political support. States require special legislation to enable P3 contracts or to grant P3s public funding. Many states require votes or formal approval from lawmakers before entering into P3 contracts, making P3 approaches highly susceptible to shifting legislative ideologies. Political transitions and shifts in legislatures' ideological

wills can result in the repeal or expiration of such legislation. For example, California lost its state P3 legislative authority signed by Governor Schwarzenegger when it was allowed to expire January 1, 2017 under Governor Brown.

Second, *political opposition* can develop when competing stakeholders, limited political consensus, and/or changing policy priorities open windows of opportunity for politicians to preserve their power, position, and/or public approval (Kingdon, 1999). For example, politicians can mobilize interests against projects, especially in communities facing the project-related construction and disruption, by attacking the projects and generating fear. This is particularly relevant for P3 projects since the complex contracts of P3s can open incumbents to challenges, potentially offering a greater opportunity for attack and weakening re-election chances (Moszoro and Spiller, 2012). As a result, “many [P3] projects have been cancelled simply due to political reasons, unrelated to their merits as infrastructure projects” (Bipartisan Policy Center, 2016).

## 2.4. Economic complications

In addition to political risk drivers discussed above, project delays and cancellations can derive from financial and economic drivers ranging from sudden and unexpected financial fluctuations (e.g., steel prices, interest rates) to economic downturns and credit scares. While these factors affect all government projects, P3s are especially susceptible given their dependence on private sector stakeholders. The Great Recession, for example, likely affected many U.S. P3s by limited available private sector funds, depressing demand, and reducing internal rates of return (Bolaños et al., 2019). Economically relevant factors identified by Song et al. (2017) include inaccurate demand forecasts, competing projects, insufficient supportive institutional infrastructure, government payment defaults, insufficient financing capacity, and changes in market demand.

## 2.5. Risk typology

To address the research question the literature was reviewed in order to develop Fig. 1. The risk typology consolidates the drivers of cancellation into four categories: bureaucratic complexity, political voice, public voice, and economic complications. This typology is applied to all cancelled, deferred, or terminated U.S. surface transportation P3s to better determine the driving factors of political and economic risk.

## 3. Data and methodology

The authors followed a series of steps for case selection, data collection, and analysis.

1. Create the database (Identify all U.S. P3 surface transportation P3s to reach RFQ).
2. Isolate projects that were canceled, deferred, terminated early (CDT).
3. Create risk typology.
4. Identify risks for each CDT project.
5. Classify projects by risk.
6. Create a data matrix to identify risk groups.

To begin case selection, the research team compiled a database containing the whole U.S. surface transportation P3 project population across all P3 project development stages. The team limited the database to surface transportation (roads, motorways, bridges, tunnels), excluding transit, airport, social infrastructure, and other transportation related projects like street lighting, to preserve comparability between projects. In addition, the database focused only on projects involving long-term private sector engagement, typically contracts including infrastructure operations and maintenance, since these offer the best

Bureaucratic Complexity	Political Voice
<ul style="list-style-type: none"> <li>• Intergovernmental Conflicts</li> <li>• Inadequate Contract Terms</li> </ul>	<ul style="list-style-type: none"> <li>• Political Transition / Legislative Change</li> <li>• Political Opposition</li> </ul>
Economic Complications	Public Voice
<ul style="list-style-type: none"> <li>• Recessionary Impacts</li> <li>• Inaccurate Demand forecasts</li> <li>• Presence of Competing Projects</li> <li>• Unexpected Changes in Market Demand</li> </ul>	<ul style="list-style-type: none"> <li>• Local Opposition (grassroots, NIMBYism)</li> <li>• Ideological Opposition</li> </ul>

Fig. 1. Risk typology.

opportunities for analyzing cancellations executed during operational phases. Consequently, the final database includes projects with the following P3 contract types: design-build-finance-operate-maintain (DBFOM), design-build-finance-maintain (DBFM), design-build-operate-maintain (DBOM), build-operate transfer (BOT), build-own-operate (BOO), and long-term lease.

The research team also chose to limit the database to a) publicly solicited projects having issued Request for Qualifications (RFQ) and b) unsolicited projects – where private companies identify needs and bring proposals to the public sector – where a Request for Proposals (RFP) issuance occurred. For solicited projects, an RFQ provides project-related information to select private firms prior to an RFP and bidder selection. As a result, the presence of an RFQ implies that the public sector has devoted important resources to the P3 approach and is committed to pursuing a P3. Projects advertised as potential P3s but lacking RFQs were not included in the database since they do not involve private sector engagement and lack consistent, comparable procurement processes between public agencies. The database only included unsolicited proposals when the public agency chose to advance the project through a P3 procurement (RFP) or direct negotiation process. The database includes project information on all U.S. surface P3s fitting the above criteria from 1989 through the end of 2018.

Based on these criteria, the authors identified 68 total projects across 22 states for inclusion in the dataset. These projects included 43 DBFOM contracts (63%), 3 DBFM contracts (4%), 1 BOT contract (2%), 7 BOO contracts (10%), 9 long term leases (13%), 1 long term lease under private development (2%), and 4 undetermined contracts (6%). Unsolicited proposals represented 20 of projects (30%), compared to 43 solicited projects (63%), and 5 undetermined projects (7%). Texas (12), Virginia (10), Florida (8), and California (6) produced more than half of the database P3 projects. The research team then identified whether each project was cancelled (the procurement or contract faced early termination) or deferred (the procurement was postponed indefinitely), at what stage, and why. The research team classified P3 projects as canceled if they either reverted to traditional procurement approaches, meaning the P3 approach was no longer used, or were cancelled outright prior to financial close. P3 cancellations occurring after financial close were classified as early contract terminations. Projects encountering bankruptcies or contract renegotiations after financial close were not considered to be cancellations as they occurred after the project had been delivered. Since the research studied the entire resulting U.S. surface transportation project population, there was no need to define additional case selection criteria.

To apply the risk typology shown in section 2.5, Fig. 1, to cancellation, deferment, early termination (CDET) events the authors employed a three-step method:

1. Define procurement events, as whether the project was cancelled, delayed, or terminated early.
2. Identify drivers of cancellation, delays, or early-termination.
  - Use relevant project documents, media releases, existing databases, project websites.
3. Classify each case based on agreed binary risk indicators.
  - Two authors independently classified each event.

- In the cases of disagreement, a third author was brought in to reconcile.
- If the factor in question could not be determined clearly the factor was not marked as a risk to maintain a conservative categorization.

To identify political risk factors and provide consistency across information gathering, the authors then employed a coding approach to aggregate project activities and/or events into seven binary risk indicators as identified through literature review: local opposition, ideological opposition, intergovernmental conflict, inadequate contract terms, legislative change, political transition, and political opposition. For example, multiple news reports indicated that political opposition contributed to the Mid-State Tollway's (Alameda and Contra Costa counties) cancellation. The authors employed a similar approach for identifying economic risks, aggregating data into four additional binary risk factors: inaccurate demand forecast, change in market demand, the presence of competitive projects, and insufficient financing capacity or other financing restraints. The authors also collected detailed project descriptions, along with information about each stage in project development process.

P3 practitioners and public owners employ multiple databases to evaluate P3 projects, but these sources do not emphasize the political and economic risks influencing P3 infrastructure delivery. As a result, data collection efforts depended on reviewing project documents, websites, and news outlets. Primary data sources included the Federal Highway Administration (FHWA) Office of Innovative Program Delivery P3 Project Profile (FHWA, 2016), the Public Works Financing Major Projects Database (Public Works Financing Newsletter, 2014), and over a decade of Annual Privatization Reports on Surface Transportation by the Reason Foundation (Reason Foundation, 2018). Specialized news reports from sources like Public Works Financing, Toll Road News, and regional news outlets were also employed to collect data on cancelled projects. Project and procurement related keywords, such as the project name, "Request for Proposals," or "cancellation" were employed to locate specific information. Note that data availability varied by project vintage since institutional learning, best practices, and sociopolitical pressures have increased demands for project transparency. In general, P3 project data availability appeared to improve with projects reaching financial close during or after 2009. While institutional learning may have contributed to this change, the timing appears to relate to the financial constraints and political concerns raised by the Great Recession.

#### 4. Results

The following section details the findings from the database creation and the application of the risk typology. The first section addresses rates of cancellation, deferment and termination amongst all 68 projects. Following this, risk drivers present at cancellation, deferment, early termination for each U.S. surface P3 projects are displayed in Table 1. The table is sorted by projects with the highest number of risks. The findings are then detailed by risk driver using information gathered about each database project. Finally, the conditions are presented in a data matrix to clarify risks present in combination.

**Table 1**  
Factors present at deferment, early termination or cancellation of U.S. Surface P3 projects; sorted by number of risks.

State	Project Name	Contract Type	Year	Status	Stage at Final Status	Bureaucratic Complexity	Public Voice	Political Voice	Economic Complications
FL	State-Road-54/56, FL54 Xpressway, Tampa	DBFOM	2014	Cancelled	Preferred Bidder	N/A	Local Opposition; Ideological Opposition	Political Opposition	Cost escalations
CA	SR 125 South Bay Expressway (SBX)	DBFOM	2011	Early Termination	Open to Traffic	N/A	Local Opposition; Ideological Opposition	Political Opposition (Federal)	Cost escalations
PA	Pennsylvania Turnpike	Lease	2008	Cancelled	Preferred Bidder	Interagency Conflict	N/A	Political Opposition	Fiscal constraints
CA	SR 91 Express Lanes, Orange County	DBFOM	2003	Early Termination	Open to Traffic	Inadequate Contract Terms	Local Opposition	Political Opposition	N/A
VA	I-81 Corridor Improvements	DBFOM	2008	Cancelled	Preferred Bidder	Intergovernmental (Business) Conflict	Local Opposition	N/A	Less than optimal business practices or competitiveness factors
CA	Mid-State Tollway (Alameda and Contra Costa counties)	DBFOM	2001	Cancelled	Commercial Close	N/A	Local Opposition	Political Opposition	Demand problems
NC	Mid-Currituck Bridge	DBFOM	2012	Cancelled	Preferred Bidder	N/A	Ideological Opposition	Political Opposition	Yes, but reason unclear
FL	First Coast Outer Beltway	DBFOM	2011	Cancelled	Submit Qualifications	N/A	Local Opposition	N/A	Cost escalations
TX	Trans-Texas Corridor I-35, TTC-35	DBFOM	2009	Cancelled	Commercial close	N/A	Local Opposition	Political Opposition	N/A
TX	TTC-69	DBFOM	2009	Cancelled	Preferred Bidder	N/A	Local Opposition	Political Opposition	N/A
CA	Accelerated-Regional-Transportation-Improvements	DBFOM	2014	Cancelled	Teams Shortlisted	N/A	N/A	Legislative Change	Fiscal constraints
AK	Knik Arm Bridge	DBFOM	2014	Cancelled	Teams Shortlisted	N/A	N/A	Legislative Change	Insufficient economic viability
FL	Alligator Alley, I-75	Lease	2009	Cancelled	RFP	N/A	N/A	Political Opposition	Less than optimal business practices or competitiveness factors
IL	Illiana-Expressway-Illinois-Portion-1	DBFOM	2015	Cancelled	Teams Shortlisted	Inadequate Contract Terms, Interagency Conflict (Legal)	N/A	N/A	N/A
IN	Illiana-Expressway-Indianas-Portion-1	DBFOM	2015	Deferred	Team Shortlisted	Inadequate Contract Terms, Interagency Conflict (Legal)	N/A	N/A	N/A
FL	Northwest Hillsborough Expressway (East-West Road)	DBFOM	2008	Cancelled	Preferred Bidder	N/A	Local Opposition; Ideological Opposition	N/A	N/A
GA	I-75/I-575 North	DBFOM	2011	Cancelled	RFP	N/A	N/A	Political Opposition; Political Transition	N/A
CA	Route 57	DBFOM	2001	Cancelled	Commercial Close	Inadequate Contract terms	N/A	N/A	N/A
TX	Cameron County, SH 550 Connectors	DBFOM	2011	Cancelled	Teams Shortlisted	N/A	N/A	Legislative Change; NIA	N/A
TX	SH 161	DBFOM	2008	Cancelled	Preferred Bidder	N/A	N/A	Legislative Change	N/A
TX	SH 121	BOT	2007	Cancelled	Preferred Bidder	N/A	N/A	Legislative Change	N/A
VA	Route 460 Corridor	DBFOM	2009	Cancelled	RFP	N/A	N/A	N/A	Insufficient economic viability; Demand problems
TX	Camino Colombia	DBFOM	2004	Early Termination	Open to Traffic	N/A	N/A	N/A	Demand problems
MS	Jackson Airport Parkway Connector	DBFOM	2009	Deferred	RFP	N/A	N/A	N/A	Fiscal constraints
MO	Safe Sound Bridge Improvement	DBFM	2008	Cancelled	Preferred Bidder	N/A	N/A	N/A	Fiscal constraints
OR	Sunrise project	INA	2007	Cancelled	Preferred Bidder	N/A	N/A	N/A	Insufficient economic viability

(continued on next page)

Table 1 (continued)

State	Project Name	Contract Type	Year	Status	Stage at Final Status	Bureaucratic Complexity	Public Voice	Political Voice	Economic Complications
OR	Newberg-Dundee Transportation improvement project	INA	2007	Cancelled	Preferred Bidder	N/A	N/A	N/A	Insufficient economic viability
OR	South I-205 Corridor Project	INA	2007	Cancelled	Preferred Bidder	N/A	N/A	N/A	Insufficient economic viability
IN	I-69 section 5	DBFOM	2017	Early Termination	Construction	N/A	N/A	N/A	Less than optimal business practices or competitiveness factors
VA	Dulles Toll Road	Long Term lease	2006	Cancelled	Preferred Bidder	N/A	N/A	N/A	Less than optimal business practices or competitiveness factors
NV	Project NEON, US 95/I-15	DBFOM	2014	Cancelled	Teams Shortlisted	N/A	N/A	N/A	Rising interest rates/private sector uncertainties

Note: Intergovernmental Conflict represents an authority overlap. Local Opposition represents the presence of NIMBY or grassroots movements; Ideological Opposition indicates the presence of Environmental Activism, Private and Foreign Firm Opposition.

Source: Authors' analysis from databases and reports, State DOT websites, and news outlets. NA: Not applicable. NIA: No information available.

#### 4.1. Cancellation, deferment & termination rates

At the time of this writing, 29 of the 68 projects identified in the U.S. surface transportation P3 database are currently operating. One, North Dakota's Fargo Bridge, returned to full public-sector control following its P3 contract's completion. One project remains under procurement while 10 projects remain under construction. 25 of the database projects were canceled during procurement, 2 were deferred, and 4 resulted in early P3 contract terminations<sup>1</sup> when public owners reestablished control midway through private concessionaire operations. This amounts to a 46% overall cancellation, termination, or deferral rate for U.S. surface transportation P3 projects, a much higher rate than initially inferred.

Analyzing the cancellations, deferrals, and terminations by P3 contract type, two DBFOM projects were deferred, four terminated, and 17 cancelled out of 43 total projects (see Table 1). Long-term lease contracts were canceled in 3 out of 9 attempted projects. The lone BOT project Texas SH 121 case resulted in a cancellation and 1 of the 3 attempted DBFOM contracts were canceled. Most project cancellations and deferrals occurred during the initial procurement and commercial close phases, making these phases – including RFQ issuance, qualifications submissions, team short listing, RFP issuance, and preferred bidder selection – the riskiest for all projects. Most projects (16) were cancelled following the selection of preferred bidders or during commercial close, likely during contract negotiations.

#### 4.2. Cancellation, deferment & termination drivers

Turning to the risks driving CDT, the database findings suggest that all four potential drivers – bureaucratic complexity, public voice, political voice, and economic complications – contributed to U.S. surface transportation P3 cancellations, deferrals, and terminations. Of the 31 database projects that experienced cancellation, deferment, or early termination, political risk factors likely contributed to 20 of them; economic complications also contributed to 20 projects. Breaking the findings down further, 10 projects demonstrated political risks without economic complications, 10 projects demonstrated economic complications without political risks, 10 projects demonstrated both political and economic challenges, and 1 project lacked sufficient information to evaluate the presence of multiple political risks but was affected by a

<sup>1</sup> Note that Indiana's I-69 project had completed procurement when it was terminated during its construction phase, the research team classified it as an early termination rather than a cancellation.

legislative change. The findings demonstrate no clear geographical or experiential patterns; a state's early projects were no more likely to fail than later projects.

Table 1 illustrates the factors present at cancellation, deferment, or early termination of U.S. Surface P3 projects; sorted by number of risks. 31 projects are included in the table. The projects contained within the table are only those where a cancellation, termination, or deferment took place after the project reached RFQ. The contract types, year of current status, current status, and stage at final bidder are included, followed by the drivers of risk. The sections following Table 1 (4.2.1 to 4.2.3) discuss each of the database cases in the context of the risk typology.

##### 4.2.1. Bureaucratic complexity

Six projects demonstrated bureaucratic complexity expressed through interagency conflict and/or inadequate contract terms. Trends identified from the cases include: problems deriving from contracts and legal discourse, coordination problems and interagency conflict, and interactions with public and political opposition.

Problems deriving from contracts and/or legal issues manifested themselves in several cases. For instance, the Iliana Expressway case was cancelled in Illinois and deferred in Indiana when the courts found the project lacked a proper "no build" scenario for adequate project assessment in a lawsuit brought by an environmental advocacy group (see Section 4.2.3 for further discussion). In California's State Route 57 case, the project was canceled when the toll road franchisee did not fulfill its contract within ten years of state legislative approval. The project represented one of California's four original P3 experiments as implemented through Assembly Bill No. 68 in 1989. The American Transportation Development (ATD) held a toll road franchise which expired in January 2001. The project was eventually cancelled because ATD did not begin the construction of the project within the first ten years after it obtained approval of the state legislature.

Interagency coordination problems, conflicts, and their resulting permitting delays also contributed to project cancellations. For example, conflict arose between the Pennsylvania governor's office and the Turnpike Authority during the state's attempt to use a long-term lease P3 approach for its Pennsylvania Turnpike. The lease plan had been floated directly after PA Act 44 expanded the Turnpike Authority's mandate to include providing annual funding contributions and hence, the Turnpike Authority pushed back, advocating instead for public control and revenue generation through state tolling. The pressure ultimately contributed to the private consortium withdrawing its bid (Toll Roads News, 2008a,b) and the Turnpike Authority now holds the lease.

In contrast, Virginia's I-81 case, uniquely, demonstrated coordination problems on the private partners' part. The I-81 corridor improvements project began in 2002 with an unsolicited proposal submitted by STAR Solutions, followed by a VDOT proposal solicitation that selected STAR Solutions as the preferred bidder. The project then was cancelled four years into negotiations, at the consortium's request, following changes in corporate ownership (Roads and Bridges, 2008).

Interactions between opposition factors and bureaucratic complexity resulted in further pressure on, California's SR – 91 project. In that case, the P3 contract included a non-compete clause that precluded public agencies from building competing infrastructure. As regional population growth drove increased congestion on non-tolled roadways, the state government attempted to bypass the non-compete clause and acquire the facility legislatively through condemnation (Federal Highway Administration, 2015). The Orange County Transportation Authority eventually bought the project to overcome the non-compete clause, ending the P3 agreement (Gifford et al., 2014).

Ultimately, while contract, legal, and interagency problems can doom a project, these bureaucratic factors were not as common in the cancelled cases as other risk factors. In addition, bureaucratic issues appear less likely to be the direct cause of project cancellations without local opposition, political opposition, and/or economic complications. However, the presence of local and political opposition and/or economic complications may be symptoms of bureaucratic disfunction. Opposition arises when a project is viewed as unfavorable by a specific group or coalition. The existence of strong political and public opposition may be signaling the need to investigate the project development. For example, strong public opposition or political actions could lead to investigations uncovering fraud or corruption. Also, entering into a P3 during unfavorable economic times may be another symptom of bureaucratic complexity. Competing agency agendas coupled with dominate political interests may result in a project going forward for political reasons, only to ultimately be canceled by market conditions. The reverse could also be true; economic complications may be used as an excuse to shield poor project development.

#### 4.2.2. Public voice

Turning next to public voice, six projects demonstrated local opposition alone, three demonstrated ideological opposition paired with local opposition, and one demonstrated ideological opposition alone. Typically manifested through environmental, noise, eminent domain seizures, and trust concerns, this opposition strongly influenced these project outcomes, particularly during the procurement stage.

Environmental opposition, both local and ideological, appeared in several database cases. For example, local environmental opposition prevented development along the Northwest Hillsborough Expressway (East-West Road) route beginning decades before a P3 was ever considered. When increased congestion and traffic later led decision makers to reopen the project in the mid-2000s, the proposed routing through sensitive wetlands again caused public concerns and activism. North Carolina's Mid-Currituck Bridge also faced legislative issues and ideological opposition due to environmental degradation. No longer considered for P3 procurement, this public-sector project continues to face local opposition on environmental degradation grounds. Similarly, locally- and ideologically-driven environmental lawsuits increased costs for California's South Bay Expressway, ultimately contributing to the project's ultimate bankruptcy and contract termination.

Environmental opposition also appeared alongside fears of noise pollution and eminent domain seizures. Tampa's State-Road-54/56, FL54 Xpressway, for example, foundered under objections from established organizations like the Urban Land Institute and the Sierra Club, the increased construction costs required for wetland-protecting elevated lanes, and fierce, long-running local opposition stemming from environmental, noise pollution, and eminent domain fears. Texas's cancelled TTC-35 and TTC 69 projects also faced a citizen uprising due to concerns over eminent domain, private property rights, and

environmental hazards.

Fragile public trust also contributed to local opposition in several cases. Specifically, the two California P3 projects now operating under public sector control – South Bay Expressway and SR 91 Express Lanes – and the cancelled Mid-State Tollway faced local opposition once expected revenues dropped, undermining trust in private sector involvement (Weikel, 2002). The SR 91 project's non-compete clause in particular caught the public's attention, driving opposition to the private sector's involvement.

Projects involving tolling tend to stir public passions (Slone, 2015), but without tolling process details, it remains difficult to determine whether tolling, or just the threat of tolling, drove public voice in the database cases. In total, 26 of the 68 database projects proposed tolled and/or managed lanes in some capacity, an additional 14 lacking sufficient details to determine if tolling would be present. Of the 26 projects, only three with sufficient tolling details were canceled. Three projects offered information on proposed tolling: Texas' SH 550, Florida's Alligator Alley (I-75), and Pennsylvania's Turnpike. All three projects proposed fixed rate tolls. Alligator Alley faced political opposition, as did the Turnpike, but did not face local or ideological opposition. In fact, the Turnpike project actually showed public support. In the Texas SH 550 case, the state chose public delivery after preferred bidder selection and did not face intense local opposition. Similarly, three cancelled managed lane projects, but without tolling details, included Nevada's Project Neon, Georgia's I-75/575, and Virginia's I-81. The first two projects also showed little evidence of local or ideological opposition influencing their cancellations. Virginia's I-81, however, saw opposition from the trucking industry and local opposition grew over the project's life, particularly as some believed the project was a "done deal" and that VDOT was not fully considerate of the public interest (Kozel, 2008). As a result, while local and ideological opposition to environmental, noise pollution, and eminent domain seizures appear relevant for P3 cancellations, specific tolling opposition appears unlikely to stimulate public voice opposition to U.S. surface transportation P3 project cancellation.

#### 4.2.3. Political voice

Political voice factors represented similarly common drivers behind the project cancellations and terminations within the U.S. surface transportation P3 database. Nine projects demonstrated political opposition alone, four projects demonstrated legislative change alone, one demonstrated political opposition with legislative change, and one experienced a political transition paired with political opposition.

Of the fifteen cases demonstrating political voice factors, seven also demonstrated public voice factors. This suggests that political actors often considered public sentiments when cancelling or terminating database projects. Although California's South Bay project broke down over federal regulatory opposition, public outcry over the SR-91 case's non-compete clause likely contributed to the political actions behind that project's public-sector buyout. The public's growing distrust likely influenced the political actions behind the Mid-State Tollway project termination as well (Weikel, 2002). Similar processes played out in Texas. Governor Perry and his supporters pushed the Trans-Texas Corridor I-35 and TTC 69 projects, but citizen uprisings produced bipartisan political opposition within the state legislature that contributed to the projects' 2009 cancellations. Political support for Florida's FL-54 Xpressway also declined dramatically in response to publicly-driven environmental mitigation costs.

Other politically driven cases, like Georgia's I-75/I-757 North project cancellation, lacked clear public voice factors. In that case, Governor Deal cancelled the procurement soon after taking office in 2011, worried that similar public sentiments surrounding older HOT projects would spill over into the I-75/I-757 North project (TheNewspaper.com, 2011). The state then issued new enabling P3 legislation in 2015, indicating an important political change. This case represented the only database project where a political transition signaled policy changes. As a result,

the database cases offer little evidence that changes in political power necessarily signal P3 cancellations. The U.S.' mature political system, manifested through bureaucratic complexity and legislative pressures, may limit incoming administrations' ability to modify previous decisions. Alternatively, political transitions may have greater impacts on project delays rather than on cancellations, deferments, or terminations.

Similarly, independent political opposition, without political transitions, was perhaps best demonstrated in Florida. There, Florida's Alligator Alley (1–75) faced strong political opposition from State Senator Aronberg who introduced two bills imposing a two-year moratorium on leases and requiring legislative approval for any lease agreements. Neither bill was enacted but they precipitated the project's ultimate cancellation by generating delays and uncertainties that raised costs and stirred up local opposition during the global financial crisis. As a result, this case suggests that political opponents can influence project outcomes.

Other politically-driven legislative and policy changes influenced additional cases. For instance, since the Pennsylvania Turnpike's lease proposal lacked sufficient structures and incentives to encourage private-sector participation, a disappointing winning bid produced political opposition that led to the P3's cancellation. The Alaska State Legislature similarly abandoned the P3 approach for its Knik Arm Bridge in 2014 after toll revenue appeared insufficient for project development. Other cases reverted to public procurement following legislative or policy changes (Texas' SH 121, SH 161, and SH 550 Cameron County Connectors), or a legislature's unwillingness to provide necessary approvals (North Carolina's Mid Currituck Bridge).

#### 4.2.4. Economic complications

Economic complications appeared in the greatest number of cases. Twenty of the cases show economic complications to be present. Common factors included poor economic viability, demand shortfalls, fiscal constraints, interest rate fluctuations, private-sector uncertainties, interactions with other public and political opposition factors, and poor business practices and competitiveness.

Several database projects presented insufficient economic viability to reach completion. Alaska, for example, turned to a P3 approach after it could not find financing for its Knik Arm Bridge under traditional procurement (Kenworthy and French, 2015). Projected toll revenues then failed to attract private sector interest. The project also faced high environmental risks, but the project's poor economic outlook presented the greater obstacle. Oregon also attempted three P3s – the Sunrise project, the Newberg-Dundee Transportation improvement project, and the South I-205 Corridor Project – but cancelled them all in 2007 after it deemed toll projections and other financial indicators insufficient for financing. Virginia's Route 460 project also proved too costly to be economically viable. Other projects appeared viable but fell short of expectations. For example, demand problems drove the Texas' Camino Colombia case's 2004 foreclosure and ultimate sale to the Texas Department of Transportation (Guasch, 2004). Weak revenues also contributed to California's Mid-State Tollway cancellations (Weikel, 2002).

Fiscal constraints also appeared strongly within several of the database's cancelled projects. Mississippi's Jackson Airport Parkway Connector case, for example, was deferred after bidders could not obtain investment grade ratings for financing during the global financial crisis and consequently could not submit proposals. Missouri's Safe Sound Bridge, similarly struggled to find financing during the 2008 economic downturn. Financial conditions, including higher interest rates, rising finance costs and increasing operation and maintenance expenses, similarly undermined Nevada's Project NEON, US 95/I-15 in August 2014 (Shine, 2014). In contrast, a \$500 million dollar annual funding gap developed in the Pennsylvania Turnpike case after tolling had been denied. Finally, California's Accelerated Regional Transportation Improvements (ARTI) case, including six bundled P3 highway projects, was cancelled after the state's Section 143 enabling legislation created

financing challenges.

Florida's Alligator Alley (I-75), too, encountered financial uncertainty during the financial crisis, with potential bidders reportedly requesting a delay in the project's procurement. Private-sector caution following the Chicago Midway's collapse probably also contributed to the challenging economic environment (Toll Roads News, 2008a). These factors compounded the project's political challenges, ultimately leading to cancellation. Texas's TTC-35, TTC 69, SH 161 and SH 550 project cancellations also occurred between March 2008 and January 2011 suggesting an interaction between the Great Recession's economic risks and the projects' tremendous public and political challenges. Opposition forces also interacted with economic conditions to drive project cancellations in California's South Bay Expressway case (Bolaños et al., 2019) and in Florida's First Coast Outer Beltway and State-Road-54/56, FL54 Xpressway cases.

Less than optimal business practices and competitiveness factors played roles as well, but appeared in the database less frequently than fiscal challenges. For example, Indiana's I-69 contract termination occurred after the special purpose vehicle's parent company, Isolux, faced embezzlement charges in Spain three weeks following financial close (Alesia and Lange, 2017). This potentially affected the private partner's ability, financially and managerially, to deliver the road on time. Changes in corporate ownership likely led to Virginia's I-81 project cancellation, at the private sector's request, following long contract negotiations (Roads and Bridges, 2008). In Virginia's Dulles Toll Road case, by contrast, the public-sector Metropolitan Washington Airports Authority won the competitive bidding process rather than one of the private sector bidders. This effectively cancelled the P3, turning it into a "public-public" partnership.

In summary, the results are displayed in Fig. 2.

To further identify the unique combination of conditions, a data matrix (Table 2) is constructed from Table 1. A full qualitative comparative analysis (QCA) cannot be conducted as all projects result in the same outcome: CDT. However, the data matrix technique is useful to identify common pairings of risks most frequently present. There are 16 different combinations of risk types. After economic complications, the next two most frequent combinations of conditions are political voice in isolation and public and political voice alongside economic conditions. Note, risk condition combinations not present are highlighted in grey. Row 16 confirms all projects were found to have some form of political risk or economic complication present (See Table 2).

Overall, the drivers are not mutually exclusive. In fact, public voice (local and ideological opposition) is intended to influence policy makers. The only case with local and ideological opposition in isolation is Florida's Northwest Hillsborough Expressway (East-West Road). The project's proposed routing through sensitive wetlands raised public concerns and led to local and ideological activism. These environmental concerns put considerable pressure and on the public sector to cancel the project and threatened legal action. Moreover, half of the projects with political voice present justified their actions by considering public sentiments. As with public voice, political voice is also sensitive to economic conditions. The negative perception of a bad public sector deal can damage a public official's reputation. In times of recession, economic complications do exist in isolation and appear effective and sufficient to cancel projects without the addition of further risks. Bureaucratic complexity also appears sufficient to drive cancellation on its own, with 3 projects cancelled solely due to this condition.

## 5. Discussion

The database findings suggest that all four potential drivers – bureaucratic complexity, public voice, political voice, and economic complications – played a strong role in U.S. surface transportation P3 cancellations, deferments, and contract terminations. These findings suggest that troubled projects reflect broad economic and political risk management failures by both the public and the private sectors.



<p>Bureaucratic Complexity [6]</p> <p>a) Inadequate contract terms are prevalent</p> <p>b) Interagency coordination is challenging</p> <p>c) Limited but significant interactions (50%) with public &amp; political voice</p>	<p>Public Voice [10]</p> <p>a) Many of the concerns were voiced before considering P3-delivery</p> <p>b) Environmental concerns, local &amp; ideological</p> <p>c) Noise concerns (nimbyism)</p> <p>d) Negative reactions to eminent domain</p>
<p>Economic Complications [20]</p> <p>a) Poor economic viability and demand shortfalls</p> <p>b) Fiscal constraints</p> <p>c) Interest rate fluctuations</p> <p>d) Poor business practices</p>	<p>Political Voice [15]</p> <p>In almost half of the projects political actors justified actions by considering public sentiments</p>

Fig. 2. Trends in drivers of CDET in US P3s.

Table 2  
Data matrix of risk conditions.

Row #	Bureaucratic Complexity	Public Voice	Political Voice	Economic Complications	n
1	0	0	0	1	10
2	0	0	1	0	4
3	0	1	1	1	4
4	0	0	1	1	3
5	1	0	0	0	3
6	0	1	1	0	2
7	1	0	1	1	1
8	0	1	0	0	1
9	1	1	0	1	1
10	1	1	1	0	1
11	0	1	0	1	1
12	1	1	1	1	0
13	1	0	0	1	0
14	1	0	1	0	0
15	1	1	0	0	0
16	0	0	0	0	0

Bureaucratic complexity influenced several database cases but was not as common as other risk factors. When they occurred, inadequate contract terms tended to generate destructive power imbalances within partnerships or legal vulnerabilities that voided project terms. Multi-level governance can also influence the development of conflicts. This appears to hold true in the Pennsylvania Turnpike case. The governor clashed with the Authority over the contract, resulting in a decision to deliver the project publicly. However, one of the virtues of multi-level governance is power is not completely held at the executive or centralized level allowing for input and decision-making to come from different levels of government. Learning across the industry and within government may also explain the low frequency of the presence of bureaucratic complexity in recent years. With the exception of the Illiana-Expressway (cancelled/deferred in 2015) no CDT project has had bureaucratic complexity present as a risk factor in the past 11 years. One possible explanation for this is localities have sought out experienced leaders to respond to demand changes and coordinate across departments to avoid or overcome contract and legal issues.

In addition to bureaucratic challenges, local and ideological opposition to environmental impacts, noise pollution, and eminent domain seizures appeared frequently among the P3 cancellations, along with anti-corporate mistrust and opposition to project costs. Public voice often produced political activity and/or compounded economic complications to undermine the database projects. Individuals who are passionate about change will voice their opinions (Hirschman, 2004). Public voice usually occurs through participation in meetings, hearing,

protests and the like. Therefore, as the literature suggests, community engagement strategies can help address such community opposition by moderating the limited, inaccurate, and/or distorted information that tends to increase oppositional pressures (DeLeon and Denhardt, 2000; Hefetz and Warner, 2007; Warner and Hefetz, 2008). In cases where ideological opposition is present better due diligence is needed to fully assess if a P3 is the appropriate delivery method. Existing procedures, including public meetings in compliance with the National Environmental Policy Act (NEPA), allow public agencies to solicit community input and identify or modify alternatives to fit community priorities. This appears particularly important for complex P3 delivery models like DBFOM and DBOM contracts given their complex risk-sharing arrangements, project structures, potential benefits, and benefit schedules.

Beyond political factors, economic complications factored into two-thirds of the P3 database cancellations, terminations, and deferments. Public agencies should recognize that P3 delivery most likely cannot turn an unviable project into a viable one, and a well-developed project can fail due to unfavorable market conditions. Improved due diligence, evaluation criteria, usage best practices, and competitive processes (public and private) appear critical for successful P3 project selection and for avoiding the business-practice and competitiveness issues that can undermine otherwise promising projects. The findings also show that exogenous economic conditions can influence P3 project outcomes. While the Great Recession represented an extreme shock, ongoing sensitivity analyses for fiscal constraints, demand projections, and interest rate projections probably could have improved risk management

during procurement processes. In addition, the high number of projects cancelled rather than deferred suggests the market might benefit from better mechanisms for deferring projects until more advantageous economic conditions arise.

## 6. Conclusion

This research developed a database and analytical framework for examining the influence of political and economic risk factors on U.S. surface transportation infrastructure P3 project cancellations, deferrals, and terminations (CDT). The authors first compiled a dataset of 68 P3 projects including information on project stages and associated cancellation, deferral, and early termination risks. Of 68 projects examined, 37% were cancelled, 3% were deferred, and 6% had their contracts terminated early. Overall, political risks contributed to 19 of 25 project cancellations, 1 out of 2 deferrals, and 2 out of 4 early terminations. Economic risks contributed to 16 out of 25 cancellations, 1 out of 2 deferrals, and 3 out of 4 early terminations. The findings demonstrate that CDTs make up 46% of all U.S. surface transportation P3 projects. Of the 46% of projects cancelled, deferred, or terminated, the most frequent identified risks included political opposition, local opposition, and inadequate demand projections. Such findings raise alarm for improved risk awareness and suggest the need for valuable risk mitigation strategies like stronger due diligence prior to P3 decision, community engagement, community grants, and Small, Women-owned, and Minority-owned Business and Disadvantaged Business Enterprise (SWaM/DBE) policies.

Despite these frequencies, project cancellations do not necessarily indicate inherent flaws in P3 projects or their deal structures. Political risk factors might simply overwhelm an otherwise viable project. In addition, projects with high environmental risks are frequently subject to public and ideological opposition. This suggests environmentally sensitive projects may not be best suited to P3s where exposure is high and the private sector is not as well equipped to internalize those risks. As a result, jurisdictions with strong public voice traditions should prioritize public engagement when pursuing large scale investment decisions in their communities. Several database projects presented insufficient economic viability to reach completion. Given exogenous economic shocks play an important role in project cancellation the findings suggest some projects are flawed and cannot simply be made into a viable project by using P3 as a delivery method. Furthermore, since economic risks remain ever present, project deferral strategies may prove valuable when paired with strong due diligence practices. By combining such political and economic risk management strategies, P3 decision-makers might reduce P3 deferrals, cancellations, and terminations in future.

Ultimately, this article compiles a complete historical cancellation analysis for audiences considering P3 surface transportation projects in the U.S. and beyond and contributes to the transport governance literature. Project cancellations due to public and political voice suggest that P3 transportation policy in the US are not beholden to the privileged corporate elite as in Lindblom (1977). Instead, we submit the polyarchy, citizen engagement in the political process (Dahl, 1973), influences what policies are enacted. Citizens are creating organizations to voice concerns, influencing the media, using elections to voice discontent, and filing litigation to challenge state DOTs. Also, due to the low frequency of bureaucratic complexity as an influencing factor in CDT we propose multi-level governance, while it can cause friction points due to shared resources, may also facilitate learning across departments and agencies, improving knowledge overtime.

Although these findings go a long way toward describing the relationships between P3 project outcomes and risk factors, the research scope was limited. As a result, much scope for future work exists, including a) extending the risk analysis to non-cancellation project outcomes (delays, design modifications, cost increases, legal problems, toll buyouts etc.) and b) a deeper investigation into the interactions

between political risk factors and economic complications.

## Funding

This research did not receive any specific grant funding from agencies in the public, commercial, or not-for-profit sectors. The research and writing of this paper was supported by the Center for Transportation Public-Private Partnership Policy and the Schar School of Policy and Government at George Mason University.

## Acknowledgements

The authors wish to extend their gratitude to Morghan Transue who provided edits and comments to a draft version of this paper.

## References

- Alesia, M., Lange, K., 2017. Mike Pence's Infrastructure Mess: what Went Wrong with I-69? Indianapolis Star. June 2017. <https://www.indystar.com/story/news/2017/06/18/mike-pence-donald-trump-public-private-partnerships-mitch-daniels-interstate-69-isolux-bloomington/388756001/>.
- Annett, A., 2001. Social fractionalization, political instability, and the size of government. IMF Working Papers 48 (3), 561–592. <https://doi.org/10.5089/9781451850437.001>.
- Aon Risk Solutions, 2018. P3-Pro: the Public-Private Partnership Pursuit Risk and Opportunity Index. Aon Risk Solutions. <http://www.aon.com/risk-services/p3-pr-o-report.jsp>.
- Bing, L., Akintoye, A., Edwards, P.J., Hardcastle, C., 2005. The allocation of risk in PPP/PFI construction projects in the UK. Int. J. Proj. Manag. 23 (1), 25–35. <https://doi.org/10.1016/j.ijproman.2004.04.006>.
- Bipartisan Policy Center, 2016. Bridging the Gap Together: A New Model to Modernize U.S. Infrastructure. Bipartisan Policy Center. <http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/05/BPC-New-Infrastructure-Model.pdf>.
- Bolaños, Lisardo, Transue, Morghan, Wheeler, Porter, Gifford, Jonathan, McCarthy, Lauren, 2018. US Surface Transportation Public-Private Partnerships: Objectives and Evidence. TRB Paper No. 18-04763.
- Bolaños, L., Gifford, J., Yun Kweun, J., 2019. Bankruptcy policy and surface transportation public-private partnerships: a comparative analysis of the US and Europe. Case Stud. Transp. Policy 7 (2), 185–195. <https://doi.org/10.1016/j.cstp.2019.04.003>.
- Brill Jr., E.D., 1979. The use of optimization models in public-sector planning. Manag. Sci. 25 (5), 413–422.
- Chen, Z., Daito, N., Gifford, J.L., 2016. Data review of transportation infrastructure public-private partnership: a meta-analysis. Transp. Rev. 36 (2), 228–250.
- Cheung, E., Chan, A.P.C., 2011. Risk factors of public-private partnership projects in China: comparison between the water, power, and transportation sectors. J. Urban Plan. Dev. 137 (4), 409–415. [https://doi.org/10.1061/\(ASCE\)UP.1943-5444.0000086](https://doi.org/10.1061/(ASCE)UP.1943-5444.0000086).
- Dahl, R., 1973. Polyarchy: Participation and Opposition. Yale University Press.
- DeLeon, L., Denhardt, R.B., 2000. The political theory of reinvention. Public Adm. Rev. 60 (2), 89–97. <https://doi.org/10.1111/0033-3352.00068>.
- Department of the Treasury, 2014. "Expanding Our Nation's Infrastructure through Innovative Financing. U.S. Department of the Treasury," Washington, D.C. <http://www.treasury.gov/press-center/press-releases/Documents/Expanding%20our%20Nation%27s%20Infrastructure%20through%20Innovative%20Financing.pdf>
- FHWA Project Profile: 91 Express Lanes, 2015–. (Accessed 15 June 2019).
- FHWA, 2016. Project profiles, 2016. [https://www.fhwa.dot.gov/ipd/project\\_profiles/index.htm](https://www.fhwa.dot.gov/ipd/project_profiles/index.htm).
- Freudenberg, N., Steinsapir, C., 1991. Not in our backyards: the grassroots environmental movement. Soc. Nat. Resour. 4 (3), 235–245.
- Gannon, M.J., 2011. A Re-examination of the Public-Private-Partnership Discourse: Was PPP the Way to Upgrade London Underground's Infrastructure? Association for European Transport and Contributors.
- Gifford, J., Bolaños, L., Daito, N., 2014. Renegotiation of Transportation Public-Private Partnerships: The US Experience. International Transport Forum Discussion Papers. <https://doi.org/10.1787/5jrw2xz9xhs1-en>.
- Guasch, J.L., 2004. Granting and renegotiating infrastructure concessions: doing it right. The World Bank.
- Guthkelch, C., 2016. Why Some P3s Succeed and Others Don't. Public Works Financing. June 2016.
- Hefetz, A., Warner, M., 2007. Beyond the market versus planning dichotomy: Understanding privatisation and its reverse in US cities. Local Gov. Stud. 33 (4).
- Henisz, W.J., 2002. The institutional environment for infrastructure investment. Ind. Corp. Chang. 11 (2), 355–389. <https://doi.org/10.1093/icc/11.2.355>.
- Hirschman, A.O., 2004. Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States. Harvard University Press, Cambridge, Mass.
- Hooghe, L., Marks, G., 2003. Unraveling the central state, but how? Types of multi-level governance. Am. Pol. Sci. Rev. 97 (2), 233–243.
- International Transportation Forum, 2018. Private investment in transport infrastructure dealing with uncertainty in contracts. <https://www.itf-oecd.org/private-investment-transport-infrastructure-uncertainty>.

- Iossa, E., Martimort, D., 2008. The simple micro-economics of public-private partnerships. SSRN ELibrary, December. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1271082](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1271082).
- Kenworthy, J., French, B., 2015. White paper on the Knik Arm bridge project. [http://www.akleg.gov/basis/get\\_documents.asp?session=29&docid=543](http://www.akleg.gov/basis/get_documents.asp?session=29&docid=543).
- Kim, J., 2014. Understanding and mitigating political risks of public-private partnerships in U.S. Infrastructure. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2431915](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2431915).
- Kingdon, J.W., 1999. *America the Unusual*. Worth Publishers, New York.
- Kobrin, S.J., 1979. Political risk: a review and reconsideration. *J. Int. Bus. Stud.* 10 (1), 67–80. <https://doi.org/10.1057/palgrave.jibs.8490631>.
- Kozel, S.M., 2008. Widening of interstate 81 in Virginia." roads to the future, 2008. [http://www.roadstothefuture.com/I81\\_Widening\\_VA.html](http://www.roadstothefuture.com/I81_Widening_VA.html).
- Kwak, Y.H., Chih, Y., Ibbs, C.W., 2009. Towards a comprehensive understanding of public private partnerships for infrastructure development. *Calif. Manag. Rev.* 51 (2), 51–78. <https://doi.org/10.2307/41166480>.
- Lawther, W.C., Martin, L.L. (Eds.), 2015. *Private Financing Of Public Transportation Infrastructure: Utilizing Public-Private Partnerships*. Lexington Books.
- Lindblom, C., 1977. *Politics and Markets*. Basic Books, New York.
- Michaud, K., Carlisle, J.E., Smith, E.R.A.N., 2008. Nimbysism vs. environmentalism in attitudes toward energy development. *Environ. Pol.* 17, 20–39. <https://doi.org/10.1080/09644010701811459>.
- Moody's Investors Service, 2016. US P3 market slowly builds on four fronts. Mar 10, 2016. <http://nast.org/wp-content/uploads/2016/03/P3.pdf>.
- Morrill, J., 2016. "N.C. House passes bill to cancel I-77 toll contract." *charlotte observer*. June 2, 2016. <http://www.charlotteobserver.com/news/politics-government/article81344977.html>.
- Morrill, J., 2016. "Tolls – and HB2 – became roadblocks for pat McCrory." *charlotte observer*. November 9, 2016. <https://www.charlotteobserver.com/news/politics-government/election/article113751839.html>.
- Moszoro, M., Spiller, P., 2012. Third-party opportunism and the theory of public contracts: operationalization and applications. In: Brousseau, E., Glachant, J.M. (Eds.), *In Manufacturing Markets: Legal, Political And Economic Dynamics*. Cambridge University Press, Cambridge, UK.
- National Audit Office, 2004. London Underground PPP: Were They Good Deals? (London). <https://www.nao.org.uk/wp-content/uploads/2004/06/0304645.pdf>.
- National Council for Public-Private Partnerships, 2015. "InfraAmericas' US P3 Forum 2015: the Top 10 Things the Market Is Talking about | NCPPP." National Council for Public-Private Partnerships, 2015. <https://ncppp.org/infraamericas-us-p3-forum-2015-the-top-10-things-the-market-is-talking-about/>.
- Oakley, D., 2002. Housing homeless people: local mobilization of federal resources to fight NIMBYism. *J. Urban Aff.* 24, 97–116. <https://doi.org/10.1111/1467-9906.00116>.
- Osei-Kyei, R., Chan, A.P., 2015. Review of studies on the critical success factors for Public-private partnership (PPP) projects from 1990 to 2013. *Int. J. Proj. Manag.* 33 (6), 1335–1346.
- Paul, S., 1992. Accountability in public services: exit, voice and control. *World Dev.* 20 (7), 1047–1060. [https://doi.org/10.1016/0305-750X\(92\)90130-N](https://doi.org/10.1016/0305-750X(92)90130-N).
- Public Works Financing, 2016. P3 Are like Piñatas -Perhaps. Public Works Financing, 2016.
- Public Works Financing Newsletter, 2014. Projects Database. Public Works Financing Newsletter, 2014. <http://pwfinance.net/projects-database/>.
- Reason Foundation, 2018. Annual Privatization Reports. Reason Foundation, 2018. <http://reason.org/privatization-report>.
- Rhodes, R.A.W., 2007. Understanding governance: ten years on. *Organ. Stud.* 28 (8) <https://doi.org/10.1177/0170840607076586>, 1243–64.
- Roads, Bridges, 2008. VDOT Ceases Negotiations with KBR to Complete I-81 Improvements. *Roads & Bridges*. January 2008. <https://www.roadsbridges.com/vdot-ceases-negotiations-kbr-complete-i-81-improvements>.
- Shine, C., 2014. State dumps public-private financing for massive I-15 project - las vegas sun newspaper. *Las Vegas Sun* 2014. August 18. <https://lasvegassun.com/news/2014/aug/18/state-dumps-public-private-financing-massive-i-15-/>.
- Simon, J.D., 1984. A theoretical perspective on political risk. *J. Int. Bus. Stud.* 15 (3), 123.
- Slone, S., 2015. Tolling & the Anti-toll Backlash." Capitol Research Transportation Policy. The Council of State Governments (CSG). [http://knowledgecenter.csg.org/kc/system/files/CR\\_Tolling%20%28%29.pdf](http://knowledgecenter.csg.org/kc/system/files/CR_Tolling%20%28%29.pdf).
- Song, J., Hu, Y., Feng, Z., 2017. Factors influencing early termination of PPP projects in China. *J. Manag. Eng.* 34, 1.
- Talus, K., 2009. Public-private partnerships in energy-termination of public service concessions and administrative acts in Europe. *J. World Energy Law Bus.* 2 (1), 43–67.
- Thenewspapercom, 2011. Georgia backs off on tolling [WWW Document], URL: <https://www.thenewspaper.com/news/36/3676.asp>. accessed 6.15.19.
- Toll Roads News, 2008. Abertis Let \$128 Billion Offer for Penn Turnpike to Expire. *Toll Roads News*. September 2008. <http://tollroadsnews.com/news/abertis-let-128-billion-offer-for-penn-pike-expire>.
- Toll Roads News, 2008. Alligator Alley Bid Date Postponed from January to May Because of Financial Crisis. *Toll Roads News*, 2008. <http://tollroadsnews.com/news/alligator-alley-bid-date-postponed-jan-to-may-because-of-financial-crisis>.
- U.S. Federal Highway Administration, 2012. Establishing a Public-Private Partnership Program: A Primer. U.S. Department of Transportation. [http://www.fhwa.dot.gov/ipd/pdfs/p3/p3\\_establishing\\_a\\_p3\\_program\\_112312.pdf](http://www.fhwa.dot.gov/ipd/pdfs/p3/p3_establishing_a_p3_program_112312.pdf).
- Warner, M.E., Hefetz, A., 2008. Managing markets for public service: the role of mixed public-private delivery of city services. *Public Adm. Rev.* 68 (1), 155–166. <https://doi.org/10.1111/j.1540-6210.2007.00845.x>.
- Weikel, D., 2002. Tollway trial at a dead end in California. *Los Angeles Times*. July 7, 2002. <http://articles.latimes.com/2002/jul/07/local/me-toll7>.
- White House, The, 2018. Legislative outline for rebuilding infrastructure in America. <https://www.whitehouse.gov/wp-content/uploads/2018/02/INFRASTRUCTURE-211.pdf>.
- Williamson, O.E., 2010. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting* (New York, NY [u.a.: Free Press [u.a.]]).
- Wilson, J.Q., 1989. *Bureaucracy: what Government Agencies Do And Why They Do it*. Basic Books, New York.
- World Economic Forum, 2014. Mitigation of Political & Regulatory Risk in Infrastructure Projects. Introduction and Landscape of Risk. World Economic Forum. [http://www3.weforum.org/docs/WEF\\_Risk\\_Mitigation\\_Report14.pdf](http://www3.weforum.org/docs/WEF_Risk_Mitigation_Report14.pdf).
- Zhang, X.Q., Xiong, Wei, 2015. Renegotiation and early-termination in public private partnership. *Int. J. Architect.Eng. Constr.* 4 (4), 204–213.